

AUG 04 2008

Amendments to the Claims

1. (Currently Amended) ~~A scalable process for the highly selective, high yield separation of nucleic acids, comprising in combination: exposure introduction; enhancement, or stabilization of structural "affinity handles" from shielded purine base sites previously present, by a process selected from the group consisting of: selective thermal denaturation and renaturation, alkaline denaturation or the use of restriction enzymes yielding single-stranded overhangs, selectively to either the desired or the undesired moieties or nucleic acid; followed by capture of the undesired (or desired) nucleic acids by techniques which are selective for the characteristics of the affinity handle wherein the product is either a nucleic acid to be purified, or a nucleic acid or a non-nucleic acid product, from which undesired nucleic acid is to be separated.~~

A scalable process for the highly selective, high yield separation of a desired product, which may be a nucleic acid or a non-nucleic acid product, from undesired nucleic acid, comprising:

exposing purine bases present within either the desired nucleic acid product or undesired nucleic acid by a process selected from the group consisting of selective thermal denaturation and renaturation, alkaline denaturation, and restriction enzyme digestion yielding single-stranded overhangs;

capture of the desired nucleic acid product or undesired nucleic acid by a technique selective for the exposed purine bases; and

separation of the desired product from the undesired nucleic acid.

2. (Previously Presented) A process according to Claim 1 wherein the ~~handle~~ exposed purine base comprises a structural form selected from the group consisting of single stranded region of nucleic acid, Triplexes, Hairpins, Stems, Loops, Cruciforms, G quartets, and modifications to the phosphate backbone.

3. (Currently Amended) A process according to Claim 1 wherein the captured nucleic acid product comprises a moiety that is sensitive to host genomic DNA contamination during selective separation.

4. (Currently Amended) A process according to Claim 1 wherein the captured nucleic acid product comprises single-strandedness.

5. (Previously Presented) A process according to Claim 1 comprising manufacture of recombinant *Taq* polymerase.

6. (Previously Presented) A process according to Claim 4 wherein the exposed purine bases of single-stranded undesired (or desired) nucleic acids facilitate a separation step selected from the group comprising: immobilized metal affinity chromatography (IMAC), immobilized single-stranded DNA binding (SSB) protein, the use of immobilized nucleic acids (poly-dT, poly-dU, or specific sequences), and of peptide nucleic acids (PNAs).

7. (Currently Amended) A process according to Claim 1 comprising introducing single strandedness as ~~[[a]]~~ an exposed purine base site-handle.

8. (Currently Amended) A process according to Claim 1 comprising ~~occurring after~~ a thermally based process in which a nucleic acid contaminant is rapidly cooled to below 65°C and is captured by an affinity method.

9. [Previously Presented] A process according to Claim 1 performed after an alkali based process in which genomic DNA or other nucleic acid contaminant is rapidly neutralized and is captured by an affinity method.

10. (Currently Amended) ~~A process according to Claim 1 comprising a step for introducing handles~~ A scalable process for the highly selective, high yield separation of a desired product, which may be a nucleic acid or a non-nucleic acid product, from undesired nucleic acid, comprising:

exposing purine bases present within either the desired nucleic acid product or undesired nucleic acid by a process selected from the group consisting of selective thermal denaturation and renaturation, alkaline denaturation, and restriction enzyme digestion yielding single-stranded overhangs;

capture of the desired nucleic acid product or undesired nucleic acid by a technique selective for the exposed purine bases; and  
separation of the desired product from the undesired nucleic acid  
wherein the process for introducing purine base sites is selected from the group comprising: selective thermal denaturation and renaturation, alkaline denaturation, ~~the use of chaotropic agents~~, the use of restriction enzymes yielding single-stranded overhangs, ~~the use of oligonucleotide dTs, single stranded DNA binding proteins, minerals, and the use of oligonucleotide dTs, single-stranded DNA binding proteins, minerals, primers, chelated metals or other nucleic acid fragments such as complementary DNA-nucleic acids~~ to facilitate capture and separation of the undesired (or desired) nucleic acid from the desired (or undesired) nucleic acids.

11. (Currently Amended) A process according to Claim 1 wherein undesired other plasmid isoforms selected from the group consisting of open circular ("nicked") and linear plasmid isoforms are selectively removed from the desired supercoiled plasmid DNA product.

12. (Currently Amended) A process according to Claim 9 wherein undesired other plasmid isoforms selected from the group consisting of open circular and linear plasmid isoforms are selectively removed from supercoiled plasmid DNA product.
14. (Previously Presented) A process according to Claim 1 in which the separation is achieved by adsorption on chelated metal.
15. (Previously Presented) A process according to Claim 1 in which the separation is achieved using multi-channel plates.
16. (Previously Presented) A process according to Claim 1 in which the separation is achieved using IMAC.
17. (Previously Presented) A process according to Claim 1 in which the separation is achieved using magnetic particles.
18. (Previously Presented) A process according to Claim 1 in which the separation of multiple samples is achieved in parallel fashion.
19. (Previously Presented) A process according to Claim 1 in which the captured nucleic acid comprises a moiety selected from BACs, PACs and YACs.
20. (Currently Amended) A process according to Claim 1 in which the captured nucleic acid is comprises a plasmid.
21. (Currently Amended) A process according to Claim 1 in which the captured nucleic acid is comprises genomic DNA.
22. (Currently Amended) A process according to Claim 1 in which the captured nucleic acid product is comprises RNA.
23. (Currently Amended) A process according to Claim 1 in which the capture ~~method~~ technique comprises is HIC.

24. (Currently Amended) A process according to Claim 1 in which the capture method technique comprises RPC.

25. Cancelled